

=> FIL REG

FILE 'REGISTRY' ENTERED AT 13:11:08 ON 14 JUL 2011  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
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=> D HIS NOFILE

FILE 'HCAPLUS' ENTERED AT 10:54:47 ON 14 JUL 2011  
E US2006-575597/APPS  
L1 1 SEA US2006-575597/AP  
E AUBERT THIERRY/AU  
L2 27 SEA ("AUBERT T"/AU OR "AUBERT THIERRY"/AU)  
E ARKEMA/CO  
L3 1087 SEA ("ARKEMA FORMERLY ATOFINA CENTRE DE RECHERCHES RHONE  
ALPES"+ALL/CO OR "ARKEMA FRANCE"+ALL/CO OR "ARKEMA FRANCE  
CRRR"+ALL/CO OR "ARKEMA FRANCE S A"+ALL/CO OR "ARKEMA FRANCE  
SA"+ALL/CO OR "ARKEMA FRANCE SOCIETE ANONYME"+ALL/CO)  
SEL L1 1- RN  
  
FILE 'REGISTRY' ENTERED AT 10:56:03 ON 14 JUL 2011  
L4 3 SEA (25038-36-2/BI OR 57-13-6/BI OR 657402-40-9/BI)  
  
FILE 'LREGISTRY' ENTERED AT 11:03:27 ON 14 JUL 2011  
L5 1 SEA UREA/CN  
E VULTAC/CN  
  
FILE 'REGISTRY' ENTERED AT 11:03:53 ON 14 JUL 2011  
E VULTAC/CN  
L6 1 SEA "VULTAC TB 7"/CN  
  
FILE 'HCAPLUS' ENTERED AT 11:04:12 ON 14 JUL 2011  
L7 9 SEA L6  
  
FILE 'LREGISTRY' ENTERED AT 11:04:30 ON 14 JUL 2011  
L8 STR  
  
FILE 'REGISTRY' ENTERED AT 11:06:13 ON 14 JUL 2011  
SCR 2043  
L9 43 SEA SSS SAM L8  
L10 1 SEA SSS SAM L8 AND L9  
L11  
  
FILE 'LREGISTRY' ENTERED AT 11:07:33 ON 14 JUL 2011  
L12 STR L8  
  
FILE 'REGISTRY' ENTERED AT 11:08:00 ON 14 JUL 2011  
L13 0 SEA SSS SAM L9 AND L12  
  
FILE 'LREGISTRY' ENTERED AT 11:09:32 ON 14 JUL 2011  
L14 STR  
L15 STR  
  
FILE 'REGISTRY' ENTERED AT 11:11:57 ON 14 JUL 2011  
L16 50 SEA SSS SAM L14 AND L15  
L17 50 SEA SSS SAM L14 AND L15 AND L9

L18 FILE 'LREGISTRY' ENTERED AT 11:13:53 ON 14 JUL 2011  
STR L15

L19 FILE 'REGISTRY' ENTERED AT 11:14:58 ON 14 JUL 2011  
6 SEA SSS SAM L14 AND L18 AND L9

L20 FILE 'LREGISTRY' ENTERED AT 11:17:01 ON 14 JUL 2011  
STR

L21 FILE 'REGISTRY' ENTERED AT 11:17:44 ON 14 JUL 2011  
50 SEA SSS SAM L14 AND L20 AND L9  
E VULTAC TB 7/CN  
E VULTAC/CN

L22 1 SEA "VULTAC TB 710"/CN

L23 1 SEA "VULTAC 3"/CN

L24 9 SEA VULTAC#

L25 6 SEA L24 NOT (L6 OR L22 OR L23)  
SEL L25 4 RN

L26 1 SEA 92769-21-6/BI

L27 5 SEA L25 NOT L26

L28 8 SEA L6 OR L22 OR L23 OR L27  
SAV L28 BOY597/A

L29 1 SEA UREA/CN

L30 FILE 'HCAPLUS' ENTERED AT 11:43:22 ON 14 JUL 2011  
55 SEA L28

L31 270706 SEA L29 OR UREA# OR H2NCONH2 OR NH2CONH2 OR CO(W)NH2(W)2

L32 1 SEA L30 AND L31

L33 FILE 'LREGISTRY' ENTERED AT 11:47:28 ON 14 JUL 2011  
E SULFUR CHLORIDE/CN

L34 2 SEA "SULFUR CHLORIDE"/CN

L35 0 SEA 10545-99-0/CRN

L36 1 SEA 10025-67-9/CRN

L37 FILE 'REGISTRY' ENTERED AT 11:49:59 ON 14 JUL 2011  
95 SEA 10545-99-0/CRN

L38 244 SEA 10025-67-9/CRN  
E TRISULFUR DICHLORIDE/CN

L39 1 SEA "TRISULFUR DICHLORIDE"/CN  
E TETRASULFUR DICHLORIDE/CN  
E SULFUR CHLORIDE/CN

L40 1 SEA "SULFUR CHLORIDE (S13CL2)"/CN

L41 529 SEA CL S/ELF

L42 62 SEA L40 AND ?PHENOL?/CNS  
E PMS/CI

L43 1410109 SEA PMS/CI  
62 SEA L41 AND L42

L44 FILE 'HCAPLUS' ENTERED AT 11:58:12 ON 14 JUL 2011  
40 SEA L43

L45 1 SEA L44 AND L31

L46 FILE 'LREGISTRY' ENTERED AT 11:58:44 ON 14 JUL 2011  
STR

L47 STR

L48 STR L47

FILE 'REGISTRY' ENTERED AT 12:21:11 ON 14 JUL 2011  
 L49 18 SEA SSS SAM L46 OR L48  
 L50 SCR 2022  
 L51 15 SEA SSS SAM (L46 OR L48) AND L50

FILE 'LREGISTRY' ENTERED AT 12:39:57 ON 14 JUL 2011  
 L52 STR L48

FILE 'REGISTRY' ENTERED AT 12:40:45 ON 14 JUL 2011  
 L53 SCR 1291 OR 2048  
 L54 50 SEA SSS SAM (L46 OR L52) AND L53  
 L55 1440 SEA SSS FUL (L46 OR L52) AND L53  
 SAV L55 BOY597P/A

FILE 'HCAPLUS' ENTERED AT 12:48:30 ON 14 JUL 2011  
 L56 4031 SEA L55  
 L57 56 SEA L56 AND L31  
 L58 45 SEA 1802-2006/PY,PRY,AY AND L57  
 SEL L58 1-45 HIT RN

FILE 'REGISTRY' ENTERED AT 12:49:56 ON 14 JUL 2011  
 L59 67 SEA (96-69-5/BI OR 57-13-6/BI OR 127148-27-0/BI OR 1502-99-4/BI  
 OR 20415-10-5/BI OR 21458-21-9/BI OR 7566-50-9/BI OR 7580-92-9  
 /BI OR 785-46-6/BI OR 857022-67-4/BI OR 96113-09-6/BI OR  
 96589-56-9/BI OR 98423-29-1/BI OR 103350-59-0/BI OR 103622-32-8

FILE 'REGISTRY' ENTERED AT 12:54:56 ON 14 JUL 2011  
 L60 920 SEA L55 AND 1/NC

FILE 'HCAPLUS' ENTERED AT 12:55:51 ON 14 JUL 2011  
 L61 3692 SEA L60  
 L62 51 SEA L61 AND L31  
 L63 40 SEA 1802-2006/PY,PRY,AY AND L62  
 L64 42 SEA L63 OR L32 OR L45  
 L65 42 SEA 1802-2006/PY,PRY,AY AND L64  
 L66 1 SEA L65 AND (L2 OR L3)  
 L67 41 SEA L65 NOT L66  
 L68 92760 SEA VULCANIZ? OR VULCANIS?  
 L69 4 SEA L67 AND L68  
 L70 37 SEA L67 NOT L69  
 L71 579172 SEA RUBBER? OR TIRE OR TIRES OR TYRE OR TYRES  
 L72 10 SEA L67 AND L71  
 L73 10 SEA L72 OR L69  
 L74 31 SEA L67 NOT L73  
 SAV L74 BOY597XS/A

FILE 'REGISTRY' ENTERED AT 13:11:08 ON 14 JUL 2011

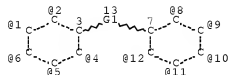
=> D QUE STAT L55  
 L46 STR



REP G1=(1-20) S  
NODE ATTRIBUTES:  
CONNECT IS E1 RC AT 13  
DEFAULT MLEVEL IS ATOM  
GGCAT IS SAT AT 13  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 13

STEREO ATTRIBUTES: NONE  
L52 STR



OH @14 Ak @15 OH @16 Ak @17

REP G1=(1-20) S  
VPA 14-1/2/4/5/6 U  
VPA 15-1/2/4/5/6 U  
VPA 16-8/9/10/11/12 U  
VPA 17-8/9/10/11/12 U  
NODE ATTRIBUTES:  
CONNECT IS E1 RC AT 15  
CONNECT IS E1 RC AT 17  
DEFAULT MLEVEL IS ATOM  
GGCAT IS SAT AT 15  
GGCAT IS SAT AT 17  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 17

STEREO ATTRIBUTES: NONE  
L53 SCR 1291 OR 2048  
L55 1440 SEA FILE=REGISTRY SSS FUL (L46 OR L52) AND L53

100.0% PROCESSED 1838381 ITERATIONS ( 42 INCOMPLETE) 1440 ANSWERS  
SEARCH TIME: 00.00.08

=> FIL HCAP

FILE 'HCAPLUS' ENTERED AT 13:11:23 ON 14 JUL 2011  
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=> D L66 1 IBIB ABS HITSTR HITIND RETABLE

L66 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2011 ACS ON STN  
 ACCESSION NUMBER: 2005:346009 HCAPLUS Full-text  
 DOCUMENT NUMBER: 142:375107  
 TITLE: Vulcanization agent usable for EPDM-type rubber  
 INVENTOR(S): Aubert, Thierry  
 PATENT ASSIGNEE(S): Arkema, Fr.  
 SOURCE: Fr. Demande, 16 pp.  
 CODEN: FRXXBL  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2861082	A1	20050422	FR 2003-12022	20031015 <--
FR 2861082	B1	20051230		
CA 2542167	A1	20050428	CA 2004-2542167	20041007 <--
WO 2005037910	A1	20050428	WO 2004-FR2526	20041007 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1675898	A1	20060705	EP 2004-791479	20041007 <--
EP 1675898	B1	20070711		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
CN 1890313	A	20070103	CN 2004-80036813	20041007 <--
JP 2007508434	T	20070405	JP 2006-534782	20041007 <--
AT 366776	T	20070815	AT 2004-791479	20041007 <--
IN 2006DN01986	A	20070615	IN 2006-DN1986	20060412 <--
US 20070142567	A1	20070621	US 2006-575597	20060413 <--
KR 2007029634	A	20070314	KR 2006-7007320	20060415 <--
KR 964521	B1	20100621		
PRIORITY APPLN. INFO.:				
			FR 2003-12022	A 20031015 <--
			WO 2004-FR2526	W 20041007 <--

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

OTHER SOURCE(S): MARPAT 142:375107

AB Vulcanization agent capable of donating sulfur comprises 10-90% poly(alkyl phenol)-  
 polysulfides and 10-90% urea. Process of vulcanization of an EPDM-type elastomeric  
 composition does not have a risk of forming nitrosamines when using this  
 vulcanization agent.  
 IT 57-13-6, Urea, reactions 657402-40-9,  
 Vultac TB 7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (vulcanization agent usable for EPDM-type rubber)  
 RN 57-13-6 HCAPLUS

CN Urea (CA INDEX NAME)



RN 657402-40-9 HCAPLUS  
 CN Vultac TB 7 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IPCI C08K0005-00 [ICM,7]; C08J0003-24 [ICS,7]; C08K0005-21 [ICS,7];  
 C08K0005-375 [ICS,7]; C08L0023-16 [ICS,7]  
 IPCR C08J0003-24 [I,A]; C08K0005-21 [I,A]; C08K0005-375 [I,A]  
 CCR 39-10 (Synthetic Elastomers and Natural Rubber)  
 ST polyalkylphenol polysulfide urea vulcanization agent EPDM rubber  
 IT 57-13-6, Urea, reactions 657402-40-9,  
 Vultac TB 7

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (vulcanization agent usable for EPDM-type rubber)

## RETABLE

Referenced Author (RAU)	Year   (RPY)	VOL   (RVL)	PG   (RPG)	Referenced Work (RWK)	Referenced   File
Fuerstenwalde Reifen Ve	1987			DD 247016 A	HCAPLUS
Graf, H	1993  46  486			KAUTSCHUK GUMMI KUNS	HCAPLUS
Laffitte, J	2003  816  48			CAOUTCHOUCS AND PLAS	HCAPLUS
Rowland, D	1994			US 5326828 A	HCAPLUS

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD  
 (1 CITINGS)

=&gt; D L73 1-10 IBIB ABS HITSTR HITIND RETABLE

L73 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2005:141200 HCAPLUS Full-text  
 DOCUMENT NUMBER: 142:254568  
 TITLE: Methods and compositions for increasing the efficacy  
 of biologically-active ingredients such as antitumor  
 agents  
 INVENTOR(S): Windsor, J. Brian; Roux, Stan J.; Lloyd, Alan M.;  
 Thomas, Collin E.  
 PATENT ASSIGNEE(S): Board of Regents, the University of Texas System, USA  
 SOURCE: PCT Int. Appl., 243 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005014777	A2	20050217	WO 2003-US32667	20031016 <--
WO 2005014777	A3	20050915		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,  
 GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
 LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ,  
 OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
 TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,  
 FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,  
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG  
 CA 2502148 A1 20050217 CA 2003-2502148 20031016 <--  
 AU 2003304398 A1 20050225 AU 2003-304398 20031016 <--  
 EP 1576150 A2 20050921 EP 2003-816736 20031016 <--  
 EP 1576150 A3 20051102  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK  
 US 20060276339 A1 20061207 US 2006-531744 20060123 <--  
 PRIORITY APPLN. INFO.: US 2002-418803P P 20021016 <--  
 WO 2003-US32667 W 20031016 <--

# ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

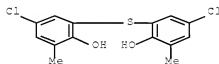
AB The invention provides methods and compns. for modulating the sensitivity of cells to cytotoxic compds. and other active agents. In accordance with the invention, compns. are provided comprising combinations of ectophosphatase inhibitors and active agents. Active agents include antibiotics, fungicides, herbicides, insecticides, chemotherapeutic agents, and plant growth regulators. By increasing the efficacy of active agents, the invention allows use of compns. with lowered concns. of active ingredients.

IT 57-13-6, Urea, biological studies 4418-66-0  
 RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (methods and compns. for increasing efficacy of biol. active ingredients such as antitumor agents)

RN 57-13-6 HCAPLUS  
 CN Urea (CA INDEX NAME)



RN 4418-66-0 HCAPLUS  
 CN Phenol, 2,2'-thiobis[4-chloro-6-methyl- (CA INDEX NAME)]



IPCI C12N [ICM,7]  
 IPCR A01N0025-00 [I,A]; A01N0037-00 [I,A]; A01N0037-10 [I,A]; A01N0037-18 [I,A]; A01N0037-22 [I,A]; A01N0037-28 [I,A]; A01N0037-30 [I,A];

CC  
IT

A01N0037-38 [I,A]; A01N0037-46 [I,A]; A01N0041-06 [I,A]; A01N0043-12 [I,A]; A01N0043-16 [I,A]; A01N0043-38 [I,A]; A01N0043-40 [I,A]; A01N0043-78 [I,A]; A01N0047-06 [I,A]; A01N0047-30 [I,A]; A01N0047-34 [I,A]; A01N0047-44 [I,A]; A01N0057-16 [I,A]; A01N0061-00 [I,A]; A01N0063-00 [I,A]; A61K0045-06 [I,A]; A61K0045-08 [I,A]; A61K0047-46 [I,A]; A61P0035-00 [I,A]; C12N [I,S]; C12N0015-00 [I,A]

1-6 (Pharmacology)

Amino acids, biological studies

Aminoglycosides

Androgens

Asbestos

Asphalt

Bentonite, biological studies

Canola oil

Carbon black, biological studies

Caseins, biological studies

Castor oil

Chlorinated natural rubber

Coal tar

Coconut oil

Cod liver oil

Collagens, biological studies

Corn oil

Corticosteroids, biological studies

Cottonseed oil

Creosote oil

Cytokinins

Diatomite

Epoxy resins, biological studies

Essential oils

Feldspar-group minerals

Fertilizers

Gasoline

Gelatins, biological studies

Gibberellins

Glycopeptides

Granite, biological studies

Growth regulators, plant

Humic acids

Jojoba oil

Kaolin, biological studies

Kerosene

Lard

Ligroine

Lime (chemical)

Linseed oil

Macrolides

Mica-group minerals, biological studies

Naphthenic acids, biological studies

Naphthenic oils

Natural products, pharmaceutical

Nitrile rubber, biological studies

Olive oil

Palm oil

Paraffin oils

Paraffin waxes, biological studies

Peanut oil



Perlite  
 Petrolatum  
 Petroleum hydrocarbons  
 Petroleum resins  
 Petroleum spirits  
 Phenols, biological studies  
 Phosphoproteins  
 Plastics, biological studies  
 Polyamide fibers, biological studies  
 Polyamides, biological studies  
 Polyenes  
 Polyoxoalkylenes, biological studies  
 Polyvinyl butyrals  
 Progestogens  
 Protein hydrolyzates  
 Pumice  
 Pyrethrins  
 Rape oil  
 Resins  
 Rosin

Rubber, biological studies

Safflower oil

Sand

Saponins

Shale

Shellac

Silica gel, biological studies

Soapstone

Soybean oil

Tall oil

Tallow

Tetracyclines

Tung oil

Turpentine

Waxes

Wood tar

Zeins

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL  
 (Biological study); USES (Uses)

(methods and compns. for increasing efficacy of biol. active  
 ingredients such as antitumor agents)

IT 50-00-0, Formaldehyde, biological studies 50-07-7 50-18-0 50-29-3,  
 biological studies 50-44-2 50-70-4, D-Glucitol, biological studies  
 50-76-0, Actinomycin D 50-79-3 50-91-9 50-99-7, D-Glucose,  
 biological studies 51-21-8 51-28-5, biological studies 51-36-5  
 52-24-4 52-68-6 52-85-7 52-90-4, L-Cysteine, biological studies  
 53-03-2 53-19-0 53-41-8 54-11-5 54-64-8 55-38-9 55-68-5  
 55-98-1 56-23-5, biological studies 56-35-9 56-36-0 56-38-2  
 56-53-1 56-72-4 56-75-7 57-06-7 57-09-0 57-13-6,  
 Urea, biological studies 57-22-7 57-48-7, D-Fructose,  
 biological studies 57-50-1, biological studies 57-63-6 57-85-2  
 58-27-5 58-36-6 58-89-9 59-05-2 59-30-3D, analogs, biological  
 studies 59-50-7 59-87-0 60-00-4, biological studies 60-12-8,  
 Benzeneethanol 60-51-5 60-57-1 61-73-4 62-38-4 62-53-3,  
 Benzenamine, biological studies 62-73-7 62-76-0 63-25-2 63-42-3  
 64-00-6 64-02-8 64-17-5, Ethanol, biological studies 65-30-5  
 66-25-1, Hexanal 66-81-9 67-48-1 67-56-1, Methanol, biological

studies 67-63-0, 2-Propanol, biological studies 67-64-1, 2-Propanone, biological studies 67-66-3, biological studies 67-68-5, biological studies 67-72-1 69-72-7, biological studies 70-30-4 70-38-2 70-43-9 71-23-8, 1-Propanol, biological studies 71-36-3, 1-Butanol, biological studies 71-55-6 71-58-9 71-63-6 72-20-8 72-43-5 72-54-8 72-55-9, biological studies 74-82-8D, Methane, triaryl derivs. 74-83-9, biological studies 74-85-1, Ethene, biological studies 74-87-3, biological studies 74-88-4, biological studies 74-90-8, Hydrocyanic acid, biological studies 74-96-4 74-98-6, Propane, biological studies 75-00-3 75-05-8, Acetonitrile, biological studies 75-07-0, Acetaldehyde, biological studies 75-08-1, Ethanethiol 75-09-2, biological studies 75-15-0, Carbon disulfide, biological studies 75-20-7, Calcium carbide (Ca(C2)) 75-21-8, Oxirane, biological studies 75-28-5 75-31-0, 2-Propanamine, biological studies 75-35-4, biological studies 75-37-6 75-43-4 75-45-6 75-52-5, biological studies 75-56-9, biological studies 75-60-5 75-68-3 75-69-4 75-71-8 75-73-0 76-01-7 76-13-1 76-22-2 76-43-7 76-44-8 76-73-3 76-87-9 77-47-4 77-48-5 77-73-6 77-92-9D, copper complexes 77-98-5 78-21-7 78-34-2 78-40-0 78-48-8 78-53-5 78-57-9 78-70-6 78-78-4 78-83-1, biological studies 78-87-5 78-90-0D, 1,2-Propanediamine, 1-alkyl derivs., salts 78-92-2, 2-Butanol 78-93-3, 2-Butanone, biological studies 79-00-5 79-01-6, biological studies 79-08-3 79-09-4, Propanoic acid, biological studies 79-10-7, 2-Propenoic acid, biological studies 79-11-8, biological studies 79-21-0, Ethaneperoxoic acid 79-24-3 79-31-2 79-43-6, biological studies 79-46-9 80-05-7, biological studies 80-13-7 80-33-1 80-46-6 80-56-8 80-57-9 80-62-6 80-71-7 81-81-2 81-82-3 81-84-5, 1H,3H-Naphtho[1,8-cd]pyran-1,3-dione 81-88-9 82-66-6 82-68-8 83-26-1 83-28-3 83-79-4 84-62-8 84-66-2 84-74-2 85-00-7 85-34-7 85-68-7 85-86-9 85-97-2 86-50-0 86-85-1 86-86-2, 1-Naphthaleneacetamide 86-87-3, 1-Naphthaleneacetic acid 87-17-2 87-41-2, 1(3H)-Isobenzofuranone 87-44-5 87-47-8 87-51-4, 1H-Indole-3-acetic acid, biological studies 87-86-5 87-90-1 88-04-0 88-06-2 88-85-7 89-68-9 89-83-8 90-03-9 90-43-7, [1,1'-Biphenyl]-2-ol 91-44-1 91-64-5, 2H-1-Benzopyran-2-one 92-04-6 93-71-0 93-76-5 93-76-5D, alkylamine salts 93-78-7 93-79-8 93-80-1 94-13-3 94-26-8 94-43-9 94-59-7 94-62-2 94-75-7, biological studies 94-75-7D, alkylamine and alkanolamine salts 94-80-4 95-06-7 95-14-7, 1H-Benzotriazole 95-48-7, biological studies 95-50-1 95-57-8 95-95-4 96-12-8 96-29-7 97-11-0 97-17-6 97-18-7 97-23-4 97-24-5 97-53-0 97-63-2 97-80-3 97-95-0 97-99-4 98-01-1, 2-Furancarboxaldehyde, biological studies 98-09-9, Benzenesulfonyl chloride 98-11-3D, Benzenesulfonic acid, C10-13-alkyl derivs., sodium salts 98-11-3D, Benzenesulfonic acid, alkyl derivs., potassium salts 98-11-3D, Benzenesulfonic acid, para-C9-13 alkyl derivs., sodium salts 98-50-0 98-54-4 98-82-8

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(methods and compns. for increasing efficacy of biol. active ingredients such as antitumor agents)

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 7159-99-1 7166-19-0 7173-51-5 7206-15-7 7206-27-1 7212-44-4  
 7257-41-2 7281-04-1 7286-69-3 7286-84-2 7287-19-6 7287-36-7  
 7292-16-2 7313-54-4 7320-34-5 7345-69-9 7350-09-6 7359-55-9  
 7379-26-2 7379-27-3 7411-47-4 7421-93-4 7429-90-5, Aluminum,  
 biological studies 7437-35-6 7439-89-6, Iron, biological studies  
 7439-92-1, Lead, biological studies 7439-97-6, Mercury, biological  
 studies 7439-98-7, Molybdenum, biological studies 7440-02-0, Nickel,  
 biological studies  
 RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL  
 (Biological study); USES (Uses)  
 (methods and compns. for increasing efficacy of biol. active  
 ingredients such as antitumor agents)

## RETABLE

Referenced Author (RAU)	Year   (RPY)	VOL   (RVL)	PG   (RPG)	Referenced Work (RWK)	Referenced File
Anon				US 20020077365 A1	HCAPLUS
Anon				US 20020103082 A1	HCAPLUS
Anon				US 4737521 A	HCAPLUS

OS.CITING REF COUNT: 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD  
 (9 CITINGS)

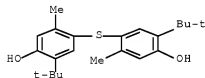
L73 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 2000:198157 HCAPLUS Full-text  
 DOCUMENT NUMBER: 132:238097  
 TITLE: High-attenuation polymeric material compositions  
 INVENTOR(S): Nomura, Takeshi; Hashimoto, Kazunobu; Wu, Chi Fei;

PATENT ASSIGNEE(S): Mihara, Toshiyuki  
 SOURCE: Tokai Rubber Industries, Ltd., Japan  
 Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 8  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000086900	A	20000328	JP 1998-253797	19980908 <--
JP 3661180	B2	20050615		
US 6265475	B1	20010724	US 1999-363749	19990730 <--
PRIORITY APPLN. INFO.:			JP 1998-215406	A 19980730 <--
			JP 1998-217364	A 19980731 <--
			JP 1998-217398	A 19980731 <--
			JP 1998-219998	A 19980804 <--
			JP 1998-220015	A 19980804 <--
			JP 1998-253797	A 19980908 <--
			JP 1998-349201	A 19981208 <--
			JP 1998-349202	A 19981208 <--

# ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The title comps. contain base polymers having acidic or basic polar side chains, agents imparting attenuation, namely hindered phenols, and compatibilizers therefor. Thus, a sheet contained Nipol AR 51 100, ADK Stab AO 40 40, and Hitanol 10 parts.  
 IT 96-69-5  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (vibration dampers containing polymers and hindered phenols and compatibilizers)  
 RN 96-69-5 HCAPLUS  
 CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)



IPCI C08L0101-00 [ICM,7]; C08K0005-13 [ICS,7]; C08K0005-47 [ICS,7];  
 C08K0005-524 [ICS,7]; F16F0015-08 [ICS,7]  
 IPCR C08K0005-13 [I,A]; C08K0005-47 [I,A]; C08K0005-524 [I,A]; C08L0057-00  
 [I,A]; C08L0101-00 [I,A]; F16F0015-08 [I,A]  
 CC 38-3 (Plastics Fabrication and Uses)  
 ST vibration damper rubber hindered phenol compatibilizer; acrylic  
 rubber vibration damper  
 IT Chlorinated polyethylene rubber  
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or  
 engineered material use); USES (Uses)  
 (Elastene 401A; vibration dampers containing polymers and hindered phenols  
 and compatibilizers)  
 IT Nitrile rubber, uses

- RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(Nipol DN 005; vibration dampers containing polymers and hindered phenols and compatibilizers)
- IT Synthetic rubber, uses  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(acrylic-epoxy, Nipol AR 51; vibration dampers containing polymers and hindered phenols and compatibilizers)
- IT Butyl rubber, uses  
Synthetic rubber, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(vibration dampers containing polymers and hindered phenols and compatibilizers)
- IT 9010-85-9  
RL: TEM (Technical or engineered material use); USES (Uses)  
(butyl rubber, vibration dampers containing polymers and hindered phenols and compatibilizers)
- IT 9002-88-4D, chlorinated  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(chlorinated polyethylene rubber, Elaslene 401A; vibration dampers containing polymers and hindered phenols and compatibilizers)
- IT 110-16-7D, Maleic acid, polymers 9003-08-1, Melamine resin 9011-05-6, Urea resin 25086-73-1 65931-66-0, Quintone 1500  
RL: MOA (Modifier or additive use); USES (Uses)  
(compatibilizers; vibration dampers containing polymers and hindered phenols and compatibilizers)
- IT 9003-18-3  
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(nitrile rubber, Nipol DN 005; vibration dampers containing polymers and hindered phenols and compatibilizers)
- IT 24937-78-8, Eva polymer 25038-32-8, Isoprene-styrene copolymer  
RL: TEM (Technical or engineered material use); USES (Uses)  
(rubber; vibration dampers containing polymers and hindered phenols and compatibilizers)
- IT 77-73-6D, Dicyclopentadiene, polymers 79-74-3 88-24-4 88-58-4 96-69-5 119-47-1 1709-70-2 1843-03-4 23911-80-0 27676-62-6 31014-41-2 35074-77-2 36443-68-2 41484-35-9 73754-27-5  
RL: MOA (Modifier or additive use); USES (Uses)  
(vibration dampers containing polymers and hindered phenols and compatibilizers)

L73 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1998:674859 HCAPLUS Full-text

DOCUMENT NUMBER: 129:344050

ORIGINAL REFERENCE NO.: 129:70079a,70082a

TITLE: Heat- and moisture-resistant epoxy resin compositions for prepreps and printed circuit boards

INVENTOR(S): Arata, Michtoshi; Sase, Shigeo; Takano, Mareo; Fukuda, Tomio

PATENT ASSIGNEE(S): Hitachi Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10279778	A	19981020	JP 1997-88016	19970407 <--
US 6180250	B1	20010130	US 1997-994967	19971219 <--
EP 870805	A2	19981014	EP 1997-250378	19971220 <--
EP 870805	A3	20000209		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO

PRIORITY APPLN. INFO.: JP 1997-88016 A 19970407 <--

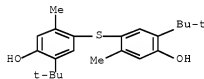
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The title comps. comprise (a) epoxy resins derived by glycidyl etherating condensates of phenols and hydroxybenzaldehyde, (b) bisphenol A-formaldehyde copolymer, (c) fireproofing agents (e.g., tetrabromobisphenol A), (d) curing accelerators (e.g., 1-cyanoethyl-2-ethyl-4-methylimidazole), (e) phenolic or organic thio compound antioxidants [e.g., hindered phenols, butylated hydroxyanisole, 2,6-di-tert-butyl-4-ethylphenol, 4,4'-butylidenebis(3-methyl-6-tert-butylphenol), dilaurylthio dipropionate, distearylthio dipropionate], and (f) urea derivs. (e.g., urea,  $\gamma$ -carbamypropyltriethoxysilane).

IT 96-69-5, 4,4'-Thiobis(3-methyl-6-tert-butylphenol)  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (antioxidants; heat- and moisture-resistant epoxy resin comps. for prepreps and printed circuit boards)

RN 96-69-5 HCAPLUS

CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)]



IT 57-13-6, Urea, uses  
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
 (heat- and moisture-resistant epoxy resin comps. for prepreps and printed circuit boards)

RN 57-13-6 HCAPLUS

CN Urea (CA INDEX NAME)



IPCI C08L0063-00 [ICM,6]; B32B0015-08 [ICS,6]; C08G0059-08 [ICS,6]; C08J0005-24 [ICS,6]; H05K0001-03 [ICS,6]

IPCR C08J0005-24 [I,A]; B32B0015-08 [I,A]; C08G0059-08 [I,A]; C08G0059-32 [I,A]; C08K0005-00 [I,A]; C08L0063-00 [I,A]; C08L0063-04 [I,A]; H01L0023-14 [I,A]; H05K0001-03 [I,A]

CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 76

ST heat resistant epoxy resin prepreg; moisture resistant epoxy resin prepreg; printed circuit board epoxy compn; fireproofing agent tetrabromobisphenol epoxy compn; curing accelerator imidazole epoxy compn; hindered phenol antioxidant epoxy compn; org thio compd antioxidant epoxy compn; urea deriv epoxy compn prepreg

IT Molding of plastics and rubbers  
(compression; heat- and moisture-resistant epoxy resin compns. for prepregs and printed circuit boards)

IT 85-60-9, 4,4'-Butylidenebis(3-methyl-6-tert-butylphenol) 87-66-1, Pyrogallol 96-69-5, 4,4'-Thiobis(3-methyl-6-tert-butylphenol) 119-47-1, 2,2'-Methylene-bis(4-methyl-6-tert-butylphenol) 123-28-4, Dilaurylthio dipropionate 693-36-7, Distearylthio dipropionate 1709-70-2, 1,3,5-Trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene 1843-03-4 4130-42-1, 2,6-Di-tert-butyl-4-ethylphenol 6683-19-8 26638-03-9D, Hydroxyanisole, butylated  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(antioxidants; heat- and moisture-resistant epoxy resin compns. for prepregs and printed circuit boards)

IT 57-13-6, Urea, uses 25085-75-0, Bisphenol A-formaldehyde copolymer 111965-56-1  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(heat- and moisture-resistant epoxy resin compns. for prepregs and printed circuit boards)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L73 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1993:474544 HCAPLUS Full-text

DOCUMENT NUMBER: 119:74544

ORIGINAL REFERENCE NO.: 119:13421a,13424a

TITLE: Manufacture of high-strength vinyl alcohol polymer fibers with excellent thermal aging resistance

INVENTOR(S): Sano, Hirofumi; Yoshimochi, Toshimi; Sato, Masahiro; Sano, Tomoyuki

PATENT ASSIGNEE(S): Kuraray Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

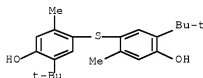
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04343708	A	19921130	JP 1991-139833	19910514 <--
PRIORITY APPLN. INFO.:			JP 1991-139833	19910514 <--

AB In manufacture of title fibers, useful for rubber reinforcements, etc., by dissolving vinyl alc. polymers with viscosity-average d.p. (DPv)  $\geq 3000$  in solvents, spinning them from nozzles to obtain yarns, and drawing the yarns to total draw ratio (containing dry-heat drawing process)  $\geq 16$ , (A) decomposition inhibitors are added or adsorbed to the inhibitor content 0.001-3.0% in the spinning yarns in the processes from dissolving the polymers to extracting the solvents from the yarns and (B) surfactants containing amide or urea linkage-containing ammonium compds. or sulfonates and/or amine sulfonates are attached on the yarns to the surfactant content 0.05-5% in the processes from just before drying process of the extracted solvents to just before dry-heat drawing process. Thus, a DMF solution containing 7% poly(vinyl alc.) (DPv 7000) was spun into 7:3 MeOH-DMF at 5°, wet-drawn to draw ratio 4, extracted with MeOH, blended with 0.7% 4',4'-thiobis(6-tert-butyl-3-methylphenol) (I), treated with 0.5% stearylaminodipropyldimethyl- $\beta$ -hydroxyethylammonium nitrate (II) and 3% sorbitan monostearate, and dried at 80° to give a fiber (I content 1.1%, II content 0.45%), which was dry-heat drawn at 180-243° to total draw ratio 20.1 to show strength 19.2 g/denier and its retention 81% after 24 h at 160° and 68% after 48 h at 160° and elastic modulus 455 g/denier.

IT 96-69-5  
RL: USES (Uses)  
(antioxidants, vinal fibers containing, for good thermal aging resistance)

RN 96-69-5 HCAPLUS

CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)]



IPCI D01F0006-14 [ICM,5]; D02J0001-22 [ICS,5]; D02G0003-48 [ICA,5]  
IPCR D01F0006-14 [I,A]; D02G0003-48 [I,A]; D02J0001-22 [I,A]  
CC 40-7 (Textiles and Fibers)  
ST vinyl alc polymer fiber strength; polyvinyl alc fiber heat resistance; amide surfactant blend vinal fiber; urea surfactant blend vinal fiber; decompn inhibitor blend vinal fiber; sulfonate surfactant blend vinal fiber  
IT 96-69-5 123-28-4, Dilauryl thiodipropionate 23128-74-7  
RL: USES (Uses)  
(antioxidants, vinal fibers containing, for good thermal aging resistance)

L73 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN  
ACCESSION NUMBER: 1993:193021 HCAPLUS Full-text  
DOCUMENT NUMBER: 118:193021  
ORIGINAL REFERENCE NO.: 118:33165a,33168a  
TITLE: 4,4'-Biphenylenediphosphonite compound and its use as an antioxidant  
INVENTOR(S): Akashi, Hiroyuki; Inoue, Takeshi; Ike, Tetsuji; Hidaka, Yasuhiro; Horie, Shoichi  
PATENT ASSIGNEE(S): Yoshitomi Pharmaceutical Industries, Ltd., Japan  
SOURCE: Eur. Pat. Appl., 16 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent



LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 516006	A1	19921202	EP 1992-108727	19920523 <--
EP 516006	B1	19961023		
R: BE, CH, DE, ES, FR, GB, IT, LI, NL				
JP 05178870	A	19930720	JP 1992-155682	19920522 <--
JP 2522136	B2	19960807		
US 5300257	A	19940405	US 1992-888925	19920527 <--
KR 148022	B1	19980817	KR 1992-9060	19920527 <--
PRIORITY APPLN. INFO.:				
			JP 1991-152618	A 19910527 <--
			JP 1991-277309	A 19910927 <--

# ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB Tetrakis(2,4-di-tert-butyl-5-methylphenyl) 4,4'-biphenylenediphosphonite is resistant to hydrolysis and is useful, especially in combination with other antioxidants, as an antioxidant for organic materials such as polymers.

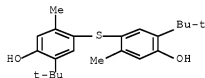
IT 96-69-5, 4,4'-Thiobis(6-tert-butyl-m-cresol)

RL: USES (Uses)

(antioxidant, biphenylenediphosphonite ester for use with)

RN 96-69-5 HCAPLUS

CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)]



IPCI C07F0009-48 [ICM,5]; C08K0005-5393 [ICS,5]

IPCR C07F0009-48 [I,A]; C08K0005-5393 [I,A]

CC 37-6 (Plastics Manufacture and Processing)

IT Acrylic polymers, miscellaneous

Epoxy resins, miscellaneous

Petroleum resins

Polyamides, miscellaneous

Polycarbonates, miscellaneous

Polyesters, miscellaneous

Polyimides, miscellaneous

Polyoxymethylenes, miscellaneous

Polyoxyphenylenes

Polysulfones, miscellaneous

Polythiophenylenes

Rubber, natural, miscellaneous

Rubber, synthetic

Siloxanes and Silicones, miscellaneous

Urethane polymers, miscellaneous

RL: MSC (Miscellaneous)

(antioxidant for, biphenylenediphosphonite ester as)

IT 9002-86-2, Poly(vinyl chloride) 9002-88-4, Polyethylene 9002-89-5,

Poly(vinylalcohol) 9003-07-0, Polypropylene 9003-08-1,  
 Formaldehyde-melamine copolymer 9003-20-7, Poly(vinylacetate)  
 9003-35-4, Formaldehyde-phenol copolymer 9003-53-6, Polystyrene  
 9003-56-9, ABS polymer 9004-34-6, Cellulose, uses 9011-05-6,  
 Formaldehyde-urea copolymer 24968-12-5,  
 1,4-Butanediol-terephthalic acid copolymer, sru 25014-41-9,  
 Polyacrylonitrile 25038-59-9, uses 26062-94-2,  
 1,4-Butanediol-terephthalic acid copolymer  
 RL: USES (Uses)  
 (antioxidant for, biphenylenediphosphonite ester as)  
 IT 77-62-3 85-60-9 88-24-4 88-26-6 96-69-5,  
 4,4'-Thiobis(6-tert-butyl-m-cresol) 118-82-1,  
 4,4'-Methylenebis(2,6-di-tert-butylphenol) 119-47-1 121-79-9, Propyl  
 gallate 128-37-0, 2,6-Di-tert-butyl-4-methylphenol, uses 991-84-4  
 1034-01-1, Octyl gallate 1166-52-5, Dodecyl gallate 1709-70-2  
 1843-03-4 4066-02-8 4130-42-1, 2,6-Di-tert-butyl-4-ethylphenol  
 6683-19-8 23128-74-7 25013-16-5, Butylated hydroxyanisole 27676-62-6  
 35074-77-2 36443-68-2 40601-76-1 57569-40-1 65140-91-2  
 70331-94-1 90498-90-1 90499-18-6 147192-63-0  
 RL: USES (Uses)  
 (antioxidant, biphenylenediphosphonite ester for use with)  
 OS.CITING REF COUNT: 7 THERE ARE 7 CAPLUS RECORDS THAT CITE THIS RECORD  
 (17 CITINGS)

L73 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 1988:168981 HCAPLUS Full-text  
 DOCUMENT NUMBER: 108:168981  
 ORIGINAL REFERENCE NO.: 108:27783a,27786a  
 TITLE: Rubber compositions containing  
 imidazol(in)es and Broensted acids  
 INVENTOR(S): Hirata, Yasushi; Hatakeyama, Kazuya; Kondo, Hitoshi  
 PATENT ASSIGNEE(S): Bridgestone Corp., Japan  
 SOURCE: Eur. Pat. Appl., 21 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 251760	A2	19880107	EP 1987-305773	19870630 <--
EP 251760	A3	19880601		
EP 251760	B1	19940126		
R: DE, FR, GB				
JP 63010645	A	19880118	JP 1986-152613	19860701 <--
JP 07086155	B	19950920		
JP 63068647	A	19880328	JP 1986-210777	19860909 <--
JP 63139931	A	19880611	JP 1986-286771	19861203 <--
JP 07064955	B	19950712		
US 5140055	A	19920818	US 1991-727395	19910705 <--
PRIORITY APPLN. INFO.:				
			JP 1986-152613	A 19860701 <--
			JP 1986-210777	A 19860909 <--
			JP 1986-286771	A 19861203 <--
			JP 1986-39088	A1 19860226 <--
			US 1987-66439	B1 19870626 <--
			US 1988-229775	B1 19880805 <--

OTHER SOURCE(S): MARPAT 108:168981

AB A rubber composition, useful for vibration dampers and tire treads, having high mech.  $\tan \delta$  at high temperature, comprises natural and/or synthetic rubber and 0.1-50 phr of a (benz)imidazol(in)e derivative. The use of 0.1-50 phr Broensted acid in addition improves the poor scorch resistance of the rubber composition containing these compds. alone, and enhances the grip of the tire tread at high speeds. SBR 100, aromatic oil 37.5, ISAF carbon black 65, and ZnO 3 parts were compounded with 0.01 mol 2-phenyl-4-methylimidazole (I) and appropriate amts. of 1,3-diphenylguanidine, 2-mercaptobenzothiazole, and S and vulcanized to give a vulcanizate showing  $\tan \delta$  at 80° under 1% dynamic strain 0.238, compared with 0.173 for a similar vulcanizate without I. Addition of 0.01 mol p-toluenesulfonic acid (II) to a similar rubber composition containing 0.01 mol 1-stearyl-2-undecylimidazole gave a composition showing Mooney scorch time at 130° (JIS K 6300) 15.1 min, compared with 6.6 min for a similar composition without II.

IT 57-13-6, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(cyclocondensation of, with phenylenediamine)

RN 57-13-6 HCAPLUS

CN Urea (CA INDEX NAME)

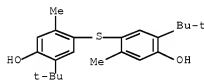


IT 96-69-5, 4,4'-Thiobis(3-methyl-6-tert-butylphenol)

RL: USES (Uses)  
(rubber compns. containing, for improved scorch time in presence  
of imidazoles)

RN 96-69-5 HCAPLUS

CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)]



IPCI C08K0005-34 [ICM,4]; B60C0001-00 [ICS,4]; C08L0021-00 [ICS,4]

IPCR B60C0001-00 [I,A]; C08K0005-3445 [I,A]; C08K0005-3492 [I,A]

CC 39-9 (Synthetic Elastomers and Natural Rubber)

ST imidazole deriv rubber mech loss; imidazoline deriv  
rubber mech loss; benzimidazole deriv rubber mech loss;  
SBR tire tread grip imidazole deriv; Broensted acid  
rubber scorch resistance; phenylmethylimidazole rubber  
mech loss; toluenesulfonic acid rubber scorch resistance

IT Rubber, butadiene-styrene, uses and miscellaneous

RL: USES (Uses)  
(compounding of, with (benz)imidazole derivs., for improved mech. loss  
at elevated temperature)

- IT Carboxylic acids, uses and miscellaneous  
RL: USES (Uses)  
(rubber compns. containing, for improved scorch time in presence of imidazoles)
- IT Resin acids and Rosin acids  
RL: USES (Uses)  
(rubber compns. containing, for improved scorch time in presence of imidazoles)
- IT Acids, uses and miscellaneous  
RL: USES (Uses)  
(Broensted, rubber compns. containing, for improved scorch time in presence of imidazoles)
- IT Vibration  
(dampers, rubber compns., containing (benz)imidazole derivs., with improved mech. loss at elevated temperature)
- IT Tires  
(treads, SBR, containing (benz)imidazole derivs. and Broensted acids, with improved grip and mech. loss at elevated temperature)
- IT 57-11-4, reactions 57-13-6, reactions 104-88-1, reactions 1200-14-2 5416-30-8 24083-13-4  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(cyclocondensation of, with phenylenediamine)
- IT 615-16-7P 1019-85-8P 2963-65-7P 5805-27-6P, 2-Heptadecylbenzimidazole 14313-45-2P 21578-58-5P 114136-99-1P, 2-(p-Butylphenyl)benzimidazole 114137-00-7P, 2-[p-(Octyloxy)phenyl]benzimidazole  
RL: IMF (Industrial manufacture); PREP (Preparation)  
(preparation and use in rubber compns., for improved mech. loss at elevated temperature)
- IT 51-17-2, Benzimidazole 60-56-0 94-52-0 104-98-3 443-48-1 570-22-9 582-60-5 615-15-6 670-96-2 693-98-1 716-79-0 822-36-6 827-43-0 931-36-2 936-49-2 1137-68-4 2034-22-2 2232-08-8 2466-76-4 3584-66-5 4414-88-4 4857-04-9 5418-95-1 5805-76-5 10041-02-8 13682-32-1 13750-62-4 16731-68-3 18156-74-6 21054-72-8 23328-87-2 23996-12-5 23996-16-9 23996-55-6 24370-25-0 31430-18-9 38668-46-1 49556-76-5 50729-75-4 50729-78-7 61698-32-6 63592-54-1 68083-35-2 85598-94-3 113946-81-9 114136-96-8 114136-97-9 114136-98-0 114137-01-8  
RL: MOA (Modifier or additive use); USES (Uses)  
(rubber compns. containing, for improved mech. loss at elevated temperature)
- IT 62-23-7, p-Nitrobenzoic acid 64-19-7, uses and miscellaneous 65-85-0, uses and miscellaneous 74-11-3, p-Chlorobenzoic acid 85-60-9, 4,4'-Butylidenebis(3-methyl-6-tert-butylphenol) 86-55-5,  $\alpha$ -Naphthylcarboxylic acid 88-99-3, uses and miscellaneous 89-05-4, Pyromellitic acid 96-69-5, 4,4'-Thiobis(3-methyl-6-tert-butylphenol) 100-09-4, p-Methoxybenzoic acid 104-15-4, uses and miscellaneous 110-15-6, uses and miscellaneous 110-16-7, uses and miscellaneous 298-07-7 528-44-9 621-82-9, Cinnamic acid, uses and miscellaneous 724-59-4 7664-38-2, uses and miscellaneous 7664-93-9, uses and miscellaneous 13598-36-2  
RL: USES (Uses)  
(rubber compns. containing, for improved scorch time in presence of imidazoles)
- IT 9003-55-8  
RL: USES (Uses)  
(rubber, compounding of, with (benz)imidazole derivs., for

improved mech. loss at elevated temperature)  
 OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
 (3 CITINGS)

L73 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 1978:154086 HCAPLUS Full-text  
 DOCUMENT NUMBER: 88:154086  
 ORIGINAL REFERENCE NO.: 88:24281a,24284a  
 TITLE: Adhesion of polyamide fibers to rubber  
 INVENTOR(S): Nakamura, Takayoshi; Hirohata, Mikio; Zako, Kanzaburo;  
 Yura, Takashi  
 PATENT ASSIGNEE(S): Sumitomo Naugatuck Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 52152982	A	19771219	JP 1976-71585	19760616 <--
JP 54000952	B	19790118		

PRIORITY APPLN. INFO.: JP 1976-71585 A 19760616 <--

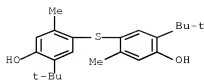
AB Heat-resistant polyamide cords, with improved adhesion to rubber, were prepared by blending an iodide of an alkali or alkaline earth metal, urea [57-13-6], and an antioxidant with HCHO-resorcinol copolymer [24969-11-7] and treating the cords with the mixture. Thus, 11 parts resorcinol was polymerized with 16.2 parts 37% HCHO in the presence of 30 parts 1% NaOH and 209 parts H2O, and the composition was blended with 100 parts (as solid part) of a composition of KI 0.5, urea 4.0, and Sumilizer WX-R [4,4'-thiobis(6-tert-butyl-3-methylphenol)] (I) [96-69-5] 2.0 parts and with a latex containing 40% Pyratex (butadiene-styrene-vinylpyridine-copolymer) [9019-71-0] and H2O. Nylon 6 cord was immersed in the resulting composition (solid content 20%) to 4% resin content, heat-treated 3 min at 150°, aged 3 days at 100°, and embedded in a rubber composition to give a composite with strength of bonding between layers 11.5 kg/9mm, compared with 3.0 kg/9mm for a composite containing cords treated with a similar composition without urea, KI, and I.

IT 57-13-6, uses and miscellaneous 96-69-5  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for finishing of nylon cord)

RN 57-13-6 HCAPLUS  
 CN Urea (CA INDEX NAME)



RN 96-69-5 HCAPLUS  
 CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)]



IPCI B32B0007-12; B32B0025-06; C09J0003-16  
 IPCR B29C0067-00 [I,A]; B29B0015-00 [I,A]; B29C0055-00 [I,A]; B29C0065-70 [I,A]; B29C0070-00 [I,A]; B32B0007-12 [I,A]; B32B0025-06 [I,A]; B32B0025-10 [I,A]; B32B0037-00 [I,A]; C08J0005-04 [I,A]; C08J0005-06 [I,A]; C09J0121-00 [I,A]; D06M0013-02 [I,A]; D06M0013-152 [I,A]; D06M0013-322 [I,A]; D06M0013-325 [I,A]; D06M0013-335 [I,A]; D06M0013-402 [I,A]; D06M0013-432 [I,A]; D06M0015-693 [I,A]; D06M0101-00 [N,A]; D06M0101-16 [N,A]; D06M0101-30 [N,A]; D06M0101-34 [N,A]  
 CC 38-13 (Elastomers, Including Natural Rubber)  
 ST nylon tire cord finishing; polyamide tire cord finishing; potassium iodide cord finishing; urea nylon cord finishing; heat resistant nylon cord; phenolic resin cord finishing  
 IT Heat stabilizers  
 (potassium iodide, urea and thiobis(butylmethylphenol), for finishing nylon tire cord)  
 IT Tires  
 (cord, finishing of, with formaldehyde-resorcinol copolymer and stabilizers, heat-resistant)  
 IT 57-13-6, uses and miscellaneous 96-69-5 7681-11-0, uses and miscellaneous  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (heat stabilizers, for finishing of nylon cord)  
 IT 24969-11-7  
 RL: USES (Uses)  
 (nylon cord treated by, for improved adhesion to rubber)

L73 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN  
 ACCESSION NUMBER: 1967:517915 HCAPLUS Full-text  
 DOCUMENT NUMBER: 67:117915  
 ORIGINAL REFERENCE NO.: 67:22267a,22270a  
 TITLE: Curing of ethylene-vinyl chloride polymers  
 PATENT ASSIGNEE(S): Monsanto Co.  
 SOURCE: Brit., 18 pp.  
 CODEN: BRXXAA  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1086265	----	19671004	GB 1964-42788	19641020 <--
DE 1569163			DE	
US 3356658		19671205	US 1963-317764	19631021 <--
PRIORITY APPLN. INFO.:			US	19631021 <--

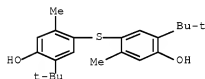
AB Ethylene-vinyl chloride copolymers (I) were cured in the presence of S and a phenol, polyol, bisphenol, urea, thiourea, dimethylolurea (II), or epoxy compound

stabilizer. The crosslinked products obtained had improved strength, elongation, dimensional stability, and solvent resistance when compared with vulcanizates prepared from the standard peroxidetype cure system. Thus, I 100, Philblack O 50, stearic acid 1, ZnO 5, S 1.5, Tellurac (Te diethyldithiocarbamate) 2, Thiotax 1, and pentaerythritol (III) 7 parts were cured at 310°F. The composition cured in 19 min. to yield a vulcanizate with a % elongation of 175, a retained elongation of 8%, and a tensile strength of 3300 psi. When the effects of varying types of fillers were investigated, Philblack E was the best reinforcement. The optimum loading was 50 parts black per 100 parts resin. The effects of various stabilizers were determined by using both 51-7 and 35 mole % I. Performance was evaluated by an oven cure. The best stabilizers for prevention of char and metal attack were, in approx. order of their effectiveness: thiourea, III, glycerol, Resimene U-920 (a melamine resin), Epoxol 9-5 (epoxidized soybean oil), II, and urea. When stabilizer combinations were studied for the prevention of polymer decomposition and corrosive attack of molds, thiourea and glycerol were the most effective.

IT 57-13-6, uses and miscellaneous 96-69-5  
 RL: USES (Uses)  
 (as stabilizer for ethylene-vinyl chloride rubber  
 vulcanization with sulfur)  
 RN 57-13-6 HCAPLUS  
 CN Urea (CA INDEX NAME)



RN 96-69-5 HCAPLUS  
 CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)]



IPCI C08F  
 IPCR C08K0003-06 [I,A]  
 CC 38 (Elastomers, Including Natural Rubber)  
 IT Soybean oil  
 RL: USES (Uses)  
 (epoxidized, as stabilizer for ethylene-vinyl chloride rubber  
 vulcanization with sulfur)  
 IT Carbon black, uses and miscellaneous  
 RL: USES (Uses)  
 (ethylene-vinyl chloride rubbers containing,  
 vulcanization of, with sulfur in presence of polyols or  
 urea derivs.)  
 IT Rubber, synthetic  
 (ethylene-vinyl chloride, vulcanization of, with sulfur in

- presence of polyols or urea derivs.)
- IT Crosslinking  
(of ethylene-vinyl chloride rubber with sulfur in presence of polyols or urea derivs.)
- IT Phosphorous acid  
RL: USES (Uses)  
(as stabilizer for ethylene-vinyl chloride rubber vulcanization with sulfur)
- IT 56-81-5, uses and miscellaneous 57-13-6, uses and miscellaneous 62-56-6, uses and miscellaneous 75-56-9, uses and miscellaneous 96-69-5 107-15-3, uses and miscellaneous 115-77-5, uses and miscellaneous 126-14-7 140-95-4 142-18-7 9003-20-7, uses and miscellaneous  
RL: USES (Uses)  
(as stabilizer for ethylene-vinyl chloride rubber vulcanization with sulfur)
- IT 108-78-1, Melamine  
RL: USES (Uses)  
(polymers with formaldehyde, as stabilizer for ethylene-vinyl chloride rubber vulcanization with sulfur)
- IT 25037-78-9P, preparation  
RL: PREP (Preparation)  
(rubber, vulcanization of, with sulfur in presence of polyols or urea derivs.)

L73 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1966:457536 HCAPLUS Full-text

DOCUMENT NUMBER: 65:57536

ORIGINAL REFERENCE NO.: 65:10756b-d

TITLE: Agents for controlling the vulcanization of polythenes

INVENTOR(S): Larsen, Hans R.

PATENT ASSIGNEE(S): Union Carbide Canada Ltd.

SOURCE: 8 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 1419940		19651203	FR 1964-994937	19641113 <--
PRIORITY APPLN. INFO.:			US	19631115 <--

- AB Materials for increasing the temperature at which organic peroxide-containing polythenes vulcanize are those normally used as antioxidants or accelerators, or those capable of acting as both. Antioxidants include aromatic amines of the type tolylene-2,4-diamine, phenolic compds., such as phenol-formaldehyde-resins, or hindered phenols, such as 4-methyl-2,6-di-tert-butylphenol, and addition products of Me2CO and PhNH2. Accelerators used are 2-mercaptobenzotriazole or its derivs., sulfides of N,N'-disubstituted dithiocarbamic acid, or thioureas, such as dimethylthiourea. Those materials acting as antioxidant, and accelerator, are metallic salts of general structure MXs, where M may be Zn, Pb, Cu, Bi, Te, or Se, s is the valency of the metal, and X is a radical of the type -SC(S)NR1R2, where R1 and R2 are alkyl or aralkyl radicals containing 1-7 C atoms, or where R1R2 is a divalent pentamethylene group. Polythenes containing one of these compds. and peroxides, such as Bz2O2, tert- or di-tert-Bu perbenzoate, or dicumyl peroxide, can

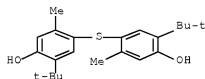


be processed at temps. of .apprx.150° and vulcanize at .apprx.160°, whereas polythenes containing only the peroxide can usually only be processed at <35°.

IT 96-69-5, m-Cresol, 4,4'-thiobis[6-tert-butyl-  
(ethylene polymer cross-linking by organic peroxides regulated by)

RN 96-69-5 HCAPLUS

CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)



IPCI C08F

IPCR C08K0005-00 [I,A]; C08L0023-06 [I,A]

CC 48 (Plastics Technology)

IT Bonds  
(cross-linkage formation, in ethylene polymers by peroxides, retardation by antioxidants and vulcanization accelerators)

IT Peroxides  
(cross-linking by, of ethylene polymers, retardation by antioxidants and rubber vulcanization accelerators)

IT Rubber  
(vulcanization accelerators for, as retarders in ethylene polymer cross-linking by peroxides)

IT 128-37-0, p-Cresol, 2,6-tert-butyl-  
(as retarder with rubber vulcanization accelerators in ethylene polymer cross-linking by peroxides)

IT 9002-88-4, Ethylene polymers  
(cross-linking of, by peroxides, retardation by antioxidants and rubber vulcanization accelerators)

IT 96-69-5, m-Cresol, 4,4'-thiobis[6-tert-butyl- 97-74-5, Sulfide, bis(dimethylthiocarbamoyl) 100-97-0, Hexamethylenetetramine 102-08-9, Carbanilide, thio- 120-78-5, Benzothiazole, 2,2'-dithiobis- 137-30-4, Zinc, bis(dimethyldithiocarbamate)- 18907-31-8, Zinc, bis(2-benzothiazolethiolato)-  
(ethylene polymer cross-linking by organic peroxides regulated by)

IT 614-45-9, Peroxybenzoic acid, tert-butyl ester  
(ethylene polymer cross-linking by, retardation by antioxidants and rubber vulcanization accelerators)

IT 137-26-8, Disulfide, bis(dimethylthiocarbamoyl)  
(ethylene polymer vulcanization inhibition by)

IT 62-56-6, Urea, thio-  
(N-alkyl derivs., ethylene-polymer cross linking by organic peroxides regulated by)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L73 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2011 ACS on STN

ACCESSION NUMBER: 1952:62713 HCAPLUS Full-text

DOCUMENT NUMBER: 46:62713

ORIGINAL REFERENCE NO.: 46:10490b-d

TITLE: The toxicity and skin effects of compounds used in the rubber and plastics industries. I. Accelerators, activators, and antioxidants

AUTHOR(S): Mallette, F. S.; Von Haam., E.

CORPORATE SOURCE: Firestone Tire & Rubber Co., Akron, O.

SOURCE: Archives of Industrial Hygiene and Occupational Medicine (1952), 5, 311-17  
CODEN: AIHOAX; ISSN: 0376-1096

DOCUMENT TYPE: Journal

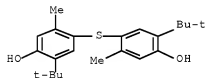
LANGUAGE: Unavailable

AB In laboratory toxicity studies of accelerators, the LD50 was 0.25g./kg. body weight for piperidinium cyclopentamethylene dithiocarbamate, 0.25 for N-isopropylbenzothiazolesulfonamide, 6.0 for bis(2-benzothiazolylthiomethyl)urea, and 1.2 for N-cyclohexyl N-diethylthiocarbonyl sulfonamide(Thiopentex); of activators, 0.2 for cyclohexylamine, 4.0 for cyclohexylammonium stearate, and 0.58 for cyclohexylammonium formate; for antioxidants, 0.62 for diamylphenol, 8.0 for 2,6-di-tert-butyl-4-methylphenol, 0.25 for triphenyl phosphite, 5.0 for bis(4-tert-butyl-m-cresol) sulfide, and 4.5 for N,N'-di-2-naphthyl-p-phenylenediamine. In human exposures compds. of all 3 groups were mild to severe skin irritants, and many, especially antioxidants, were moderately sensitizing

IT 96-69-5, m-Cresol, 4,4'-thiobis[6-tert-butyl- (skin effects and toxicity of)

RN 96-69-5 HCAPLUS

CN Phenol, 4,4'-thiobis[2-(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)



CC 13 (Chemical Industry and Miscellaneous Industrial Products)

IT Sensitization  
(by compds. in plastics and rubber industries)

IT Rubber  
(deterioration-preventing agents and vulcanization accelerators and activators for, skin effect and toxicity of)

IT Skin  
(effect of compds. in plastics and rubber industries on)

IT Antioxidants  
(in plastics and rubber industries, skin effects and toxicity of)

IT 28652-04-2P 34961-28-9P  
RL: SPN (Synthetic preparation); PRP (Properties); PREP (Preparation)  
(The toxicity and skin effects of compounds used in the rubber and plastics industries. I. Accelerators, activators, and antioxidants)

IT 93-46-9, p-Phenylenediamine, N,N'-di-2-naphthyl- 95-35-2, Benzothiazole, 2,2'-(ureylenebis(methylenethio))bis- 96-63-5, m-Cresol, 4,4'-thiobis[6-tert-butyl- 98-77-1, 1-Piperidinecarboxylic acid, piperidine salt 101-02-0, Phenyl phosphite, (PhO)3P 108-91-8, Cyclohexylamine 120-95-6, Phenol, 2,4-bis(1,1-dimethylpropyl)- 128-37-0, p-Cresol, 2,6-di-tert-butyl- 10220-34-5,

2-Benzothiazolesulfenamide, N-isopropyl- 15860-21-6, Stearic acid,  
cyclohexylamine salt 52185-80-5, Hydrosulfamine,  
N-cyclohexyl-S-(diethylthiocarbamoyl)-  
(skin effects and toxicity of)

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD  
(2 CITINGS)